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PHOTOGRAPHIC INTELLIGENCE REPORT

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COMPARISON OF SELECTED SAM AND ABM FACILITIES, USSR

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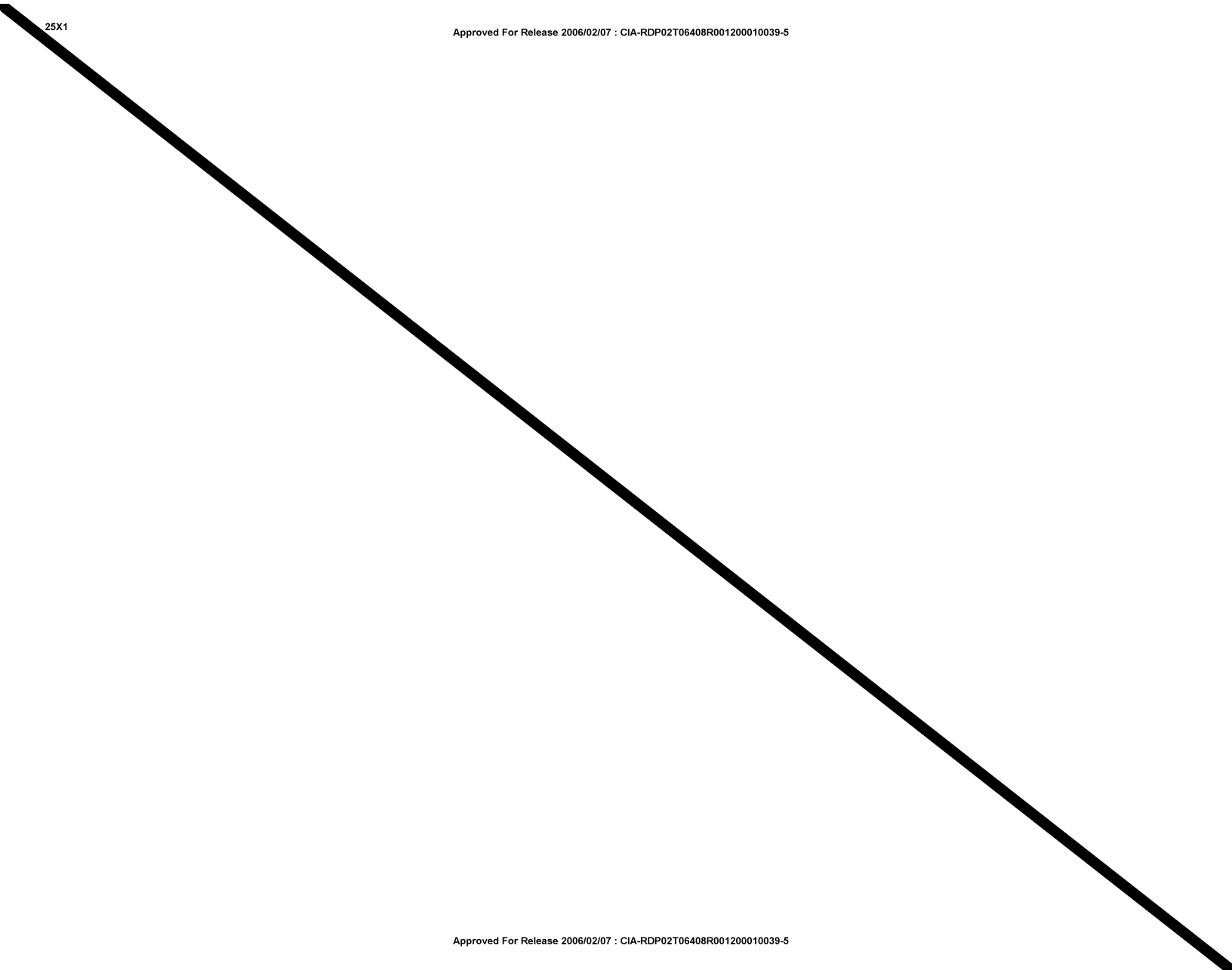

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FIGURE 1

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COMPARISON OF SELECTED SAM AND ABM FACILITIES, USSR

INTRODUCTION

This report has been prepared in response to a CIA requirement which requested a comparative analysis of launch site configurations at Sary Shagan Antimissile Test Center, Launch Complex A, Launch Sites 5 and 6, with those at a typical Moscow herringbone SA-1 launch group. The requirement was prompted by photo analysis of photography which revealed strong evidence that the Soviets had originally planned the construction of rectangular six position launch sites at the Sary Shagan Launch Complex. To provide a basis for examining the possible significance of site geometry, the first part of this report presents detailed dimensional and graphic comparisons of Sary Shagan Launch Complex A, Launch Sites 5 and 6, and a typical Moscow herringbone SA-1 launch group. The second part presents information on the probable GALOSH launch group under construction at Moscow SAM Site E33-1. The report contains dimensioned line drawings, to a common scale of one inch equals approximately 120 feet, and large scale photographs. The comments included are intended as general observations in support of the graphic material.

COMPARISON OF SARY SHAGAN AND MOSCOW LAUNCH FACILITIES

Launch Site 5, Sary Shagan Antimissile Test Center, is located in the northwestern corner of Launch Complex A, at 46-26N 072-51E. It is situated approximately 2,000 feet southwest of Electronics Site C and 3,000 feet west of Launch Site 6. All structural components and launchers presently visible (Figure 4) were probably present at the time of initial . Because of the unique, curved, ready buildings at Launch Sites 5 and 6, the sites are generally accepted as prototype sites for the probable long range SAM launch complexes deployed in the Leningrad area. Nevertheless, these Sary Shagan sites have occasionally been suggested as possible prototypes for a system which the Soviets intended for use on the Moscow SA-1 launch sites. This is due to the fact that Launch Site 5 contains three equally spaced launch positions arranged in a line (Figures 3 and 4). Though the spacing of these three launch positions is not identical to that separating three SA-1 launch positions (Figures 7 and 8), it appears adequate to permit an SA-1 type launch operation.

There is no evidence to suggest that any changes have been made to the facilities as first seen at Launch Site 5. There is, however, evidence to suggest that the option of additional launch facilities was considered at Site 5, inasmuch as the existing facilities are confined to one half of the secured area available, leaving the other (eastern) half of the area completely vacant. The existing loop service road would also be adequate to serve similar facilities located in the eastern half of the secured area.

Launch Site 6, at Sary Shagan Launch Complex A, located ay 46-26N 072-52E, was well established by although further construction activity occurred following that date. At Launch Site 6 the evidence is even stronger that the Soviet's original design included provision for six launch positions, each using the curved missile ready building concept, with three positions on each side of a central control facility, all served by a central loop road.

The evidence which suggests the probability of a six-position launch site consists of three circular, regularly spaced excavations, within the secured area (Figure 5). These three circular excavations (probably intended for permanently emplaced launcher foundations), taken in conjunction with the two existing launch positions at Launch Site 6, form the basis for a regularly spaced six-position launch site which reasonably approximates, in size and configuration, a typical SA-1 launch group (Figures 7 and 8). The sixth launch position, for which no foundation excavation is apparent, would be located equidistant between the two existing circular excavations on the east side of the site area.

It is not possible to determine, with certainty, whether these circular excavations were part of the original design concept for Launch Site 6, or whether they were added sometime after the construction of the other facilities had been completed. These excavations were first visible on photography of Prior to that time the available photography was not of sufficient quality to permit the identification of these excavations, however, there were some indications of their presence. Available photographic evidence suggests that these circular excavations represented an integral part of the original site concept at Launch Site 6. Subsequently, this concept was altered, with the site assuming the configuration which presently exists at Launch Site 6.

Having established that the Soviets probably considered a 6 position arrangement in the original design of the Sary Shagan Launch Sites, it remains to describe the possible configuration of such sites and to determine whether this arrangement could have been intended for the Moscow SA-1 sites. Figure 9 shows that such a six-position concept could easily have been accommodated within the available space, and around the existing facilities, at Launch Site 6.

Figure 10 illustrates a projection of this six-position site, placed over a typical SA-1 launch group. It is still possible to place all the facilities within the limiting area, although the resulting arrangement would leave scant room for the necessary service road. It should be emphasized that no construction activity, suggestive of this application, has ever been identified at any of the Moscow SA-1 launch sites.

The "typical SA-1 launch group" depicted in Figures 7 and 8 was taken from Moscow SAM Site E32-1. This choice was made solely due to the availability of very good quality, large scale photography of this particular site. The launch group presented here is representative of those found on all of the herringbone launch sites.

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MOSCOW SAM AND PROBABLE ABM DEFENSES

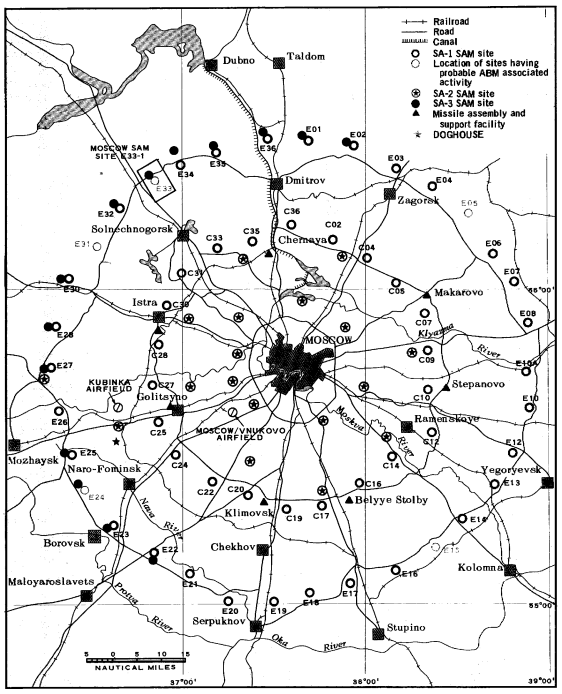

FIGURE 2

MOSCOW SAM SITE E33-I

The facilities presented in the remainder of this report are the probable GALOSH launch positions under construction at Moscow SAM Site E33-1 (Figure 12). These facilities have no known functional relationship to the facilities discussed above, however they are included in this report because of the geometric and mensural correlations which exist.

Moscow SAM Site E33-1 is located approximately 45 nautical miles (nm) northwest of Moscow at 56-20N 36-48E. The appearance of probable GALOSH launch position construction at this site is the first sign of such activity in the Moscow area (Document References 1 and 2). SAM Site E33-1 is the furthest advanced of five herringbone sites which exhibit probable ABM-related activity (Figure 2).

This activity was first identified, in very early stages of construction, on [redacted]. The activity consists of two series of road-served preparatory excavations, four of which are located around each small building in the original triad facility (Figures 11 and 12). All photo coverage subsequent to [redacted] has been small scale [redacted] photography, precluding a detailed interpretation of the excavations themselves. The identification and designation of this activity is based upon the close similarity to the probable GALOSH launch positions located at Facility C, Launch Complex B, Sary Shagan Antimissile Test Center. For an analysis of that activity, see Document Reference 2. The mensuration presented in this report should facilitate further analysis of this activity and perhaps establish a basis on which to evaluate any similar activity which may occur at other sites around Moscow.

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Figure 13 presents a composite drawing to a common scale of all the facilities discussed in this report, with each facility keyed to a common centerpoint. The purpose of the drawing is to permit a simultaneous comparison of the geometry of all facilities discussed in the report.

All mensuration shown in this report was performed by the NPIC Technical Intelligence Division and the degree of accuracy varies with the individual areas. For Launch Sites 5 and 6, Sary Shagan, all measurements are considered accurate within plus or minus 5 feet, with the exception of those measurements made from the fence lines. These are considered accurate within plus or minus 10 feet or 3 percent, whichever is greater. All dimensions of the Moscow facilities are considered accurate within plus or minus 5 feet, except for those which are measured from the center lines of the access roads. These are considered accurate within plus or minus 10 feet or 3 percent, whichever is greater.

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REFERENCES

MAPS AND CHARTS

AMS. Series DESPA-1, Sheet NL43-4, Scale 1:250,000, Edition 1-AMS 6-63 (TOP SECRET)

USATC. Series 200, Sheet 154-22A, Scale 1:200,000, 1st edition, January 1959 (SECRET)

USATC. Series 200, Sheet 245-9AL, Scale 1:200,000, 2nd edition, May 1961 (SECRET)

DOCUMENTS

1. CIA/PIR-13/64, Comparison of Possible AMM-Associated Facilities at Moscow and Sary Shagan, USSR , May 1964 (TOP SECRET)
2. CIA/PIR-61068 , Launch Complex B, Sary Shagan Antimissile Test Center, USSR, 1960-1965, November 1965 (TOP SECRET)

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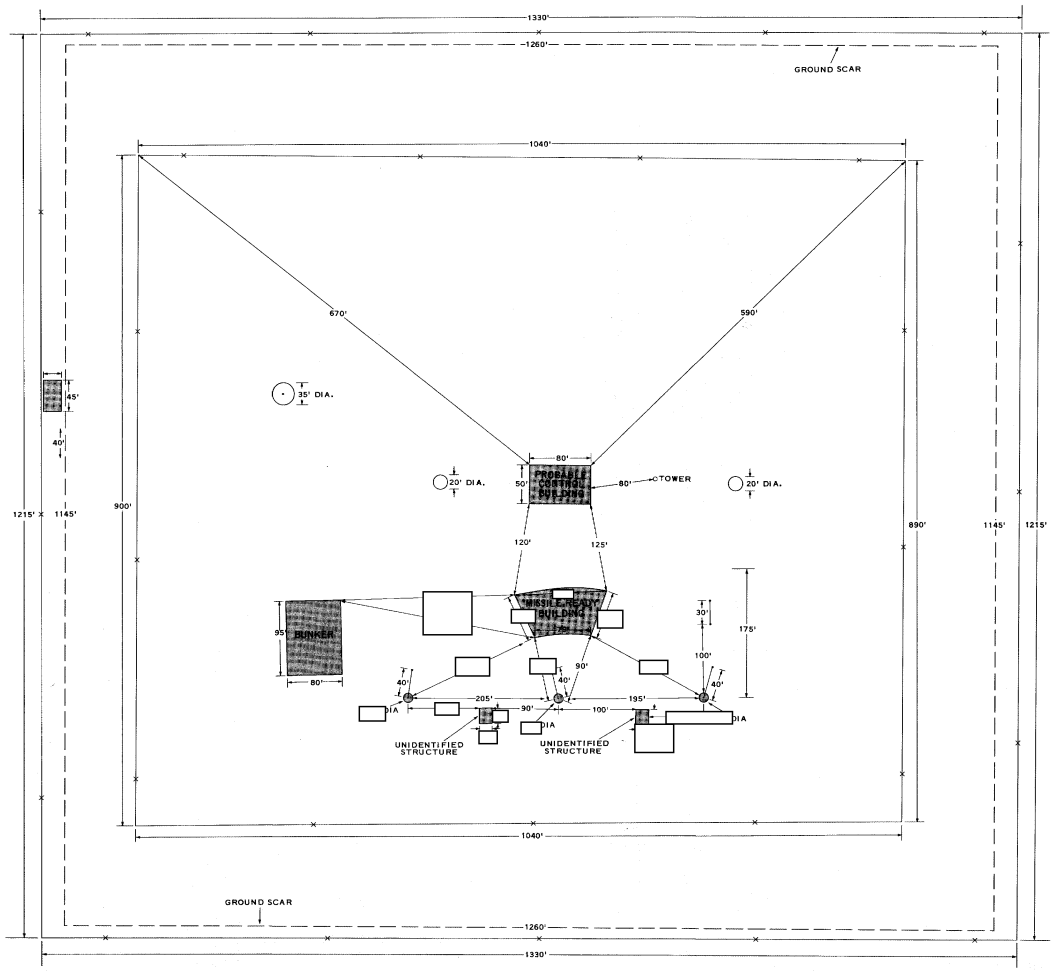
SARY SHAGAN ANTIMISSILE TEST CENTER
LAUNCH COMPLEX A
LAUNCH SITE 5



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Launch position
Fence

100 0 100 200
FEET (APPROXIMATE)

FIGURE 3

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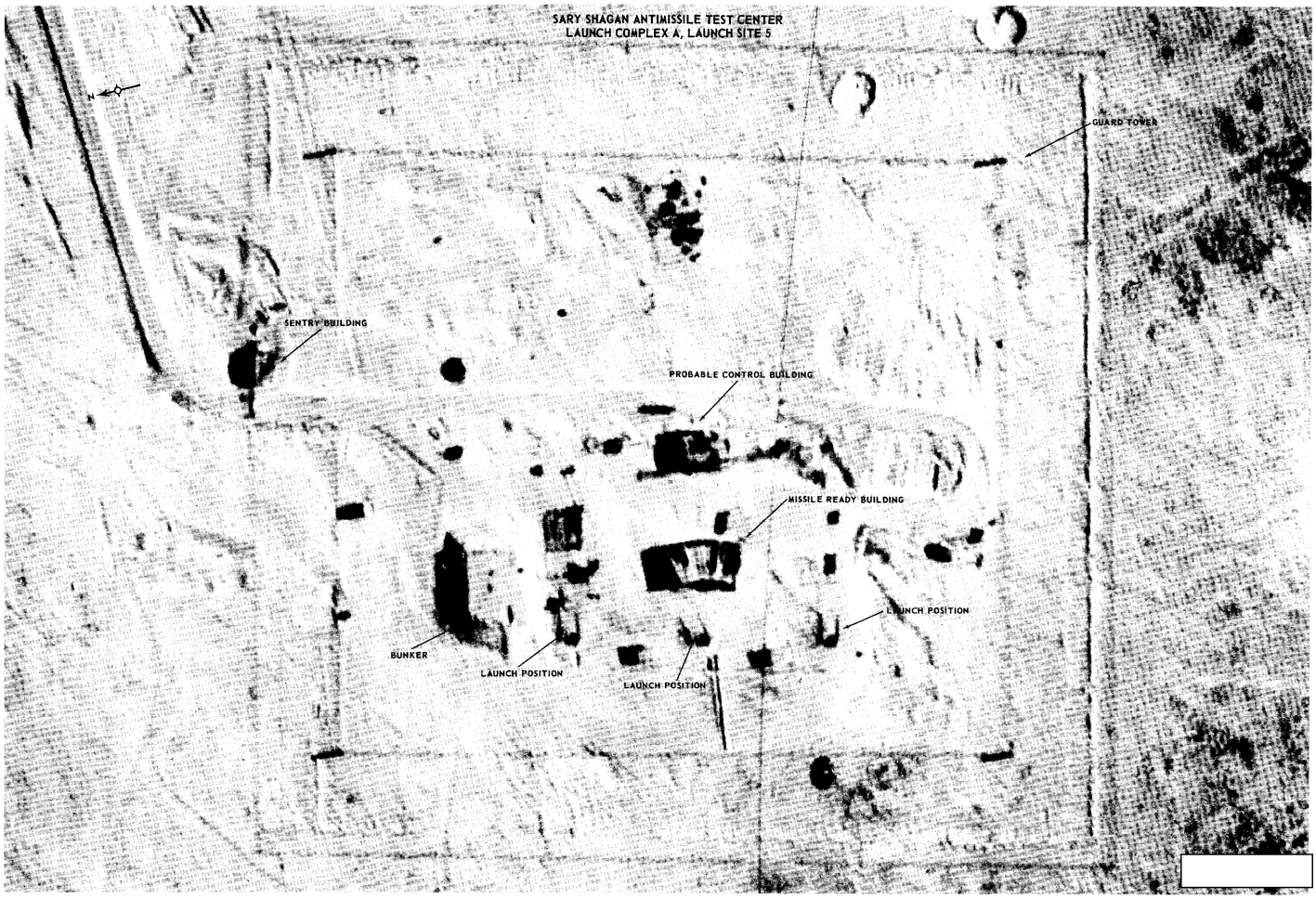

FIGURE 4

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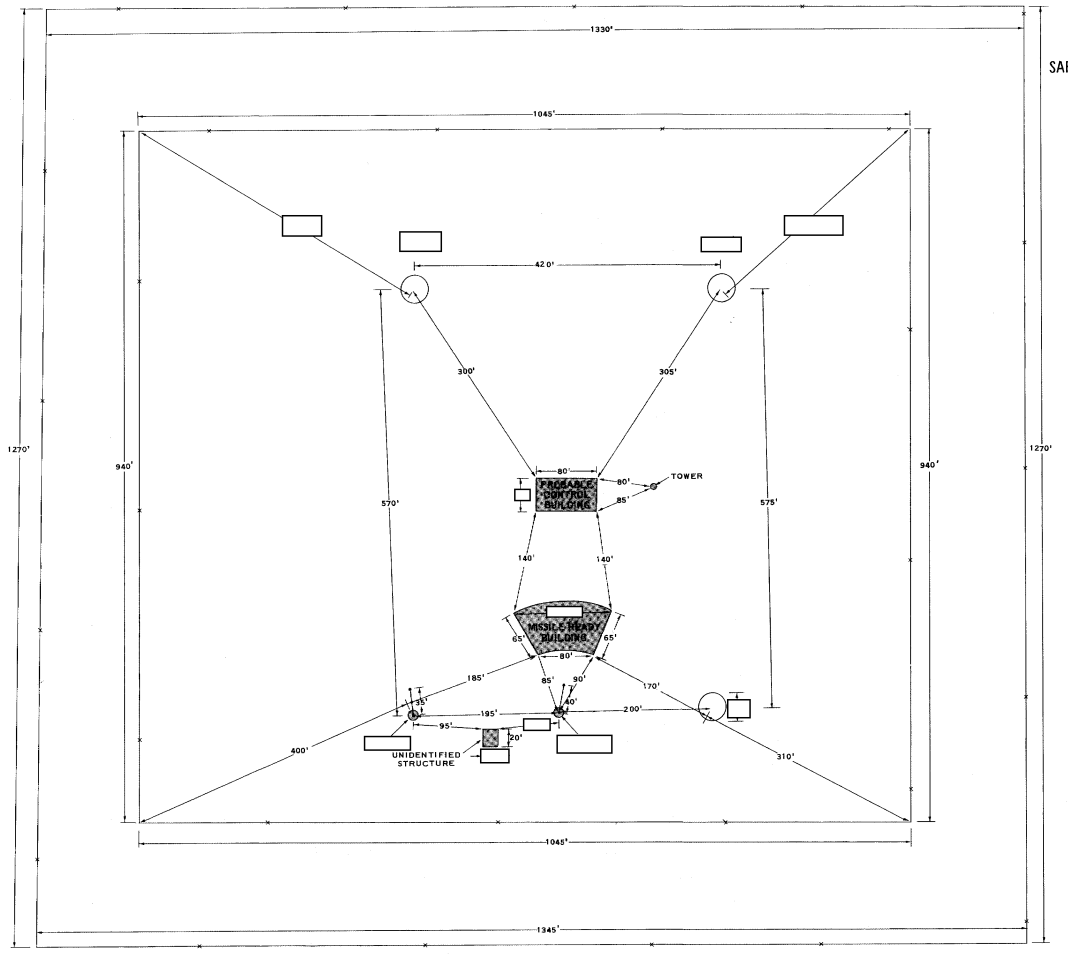
SARY SHAGAN ANTIMISSILE TEST CENTER
LAUNCH COMPLEX A
LAUNCH SITE 6



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Launch position
Projected launch position
Fence

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FEET (APPROXIMATE)

FIGURE 5

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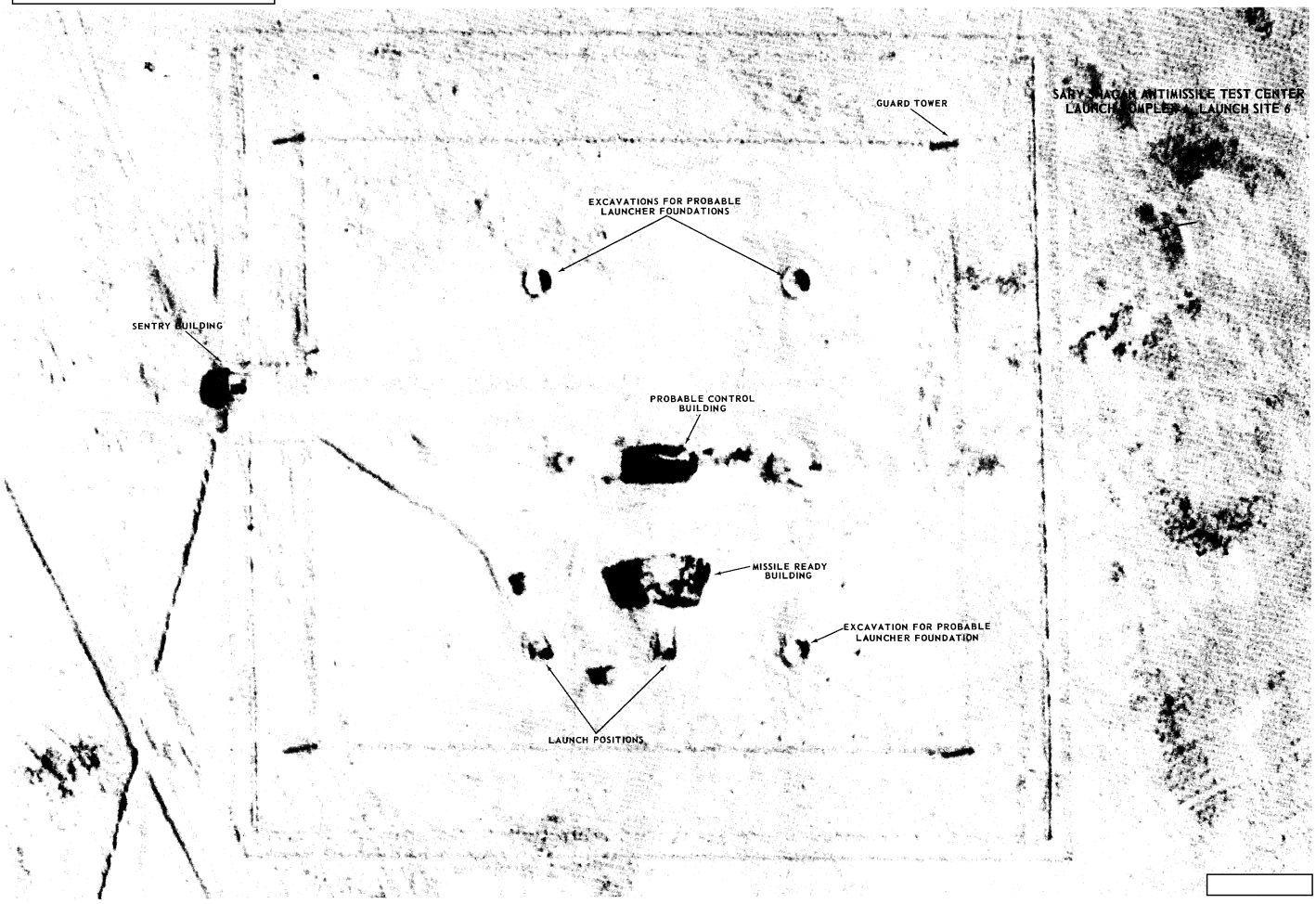

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FIGURE 6

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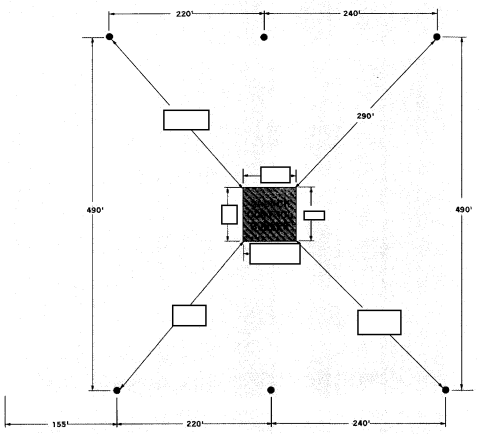
MOSCOW SAM SITE E-32-1
(Typical SA-1 Launch Group)



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● Launch position

100 0 100 200
FEET (APPROXIMATE)

FIGURE 7

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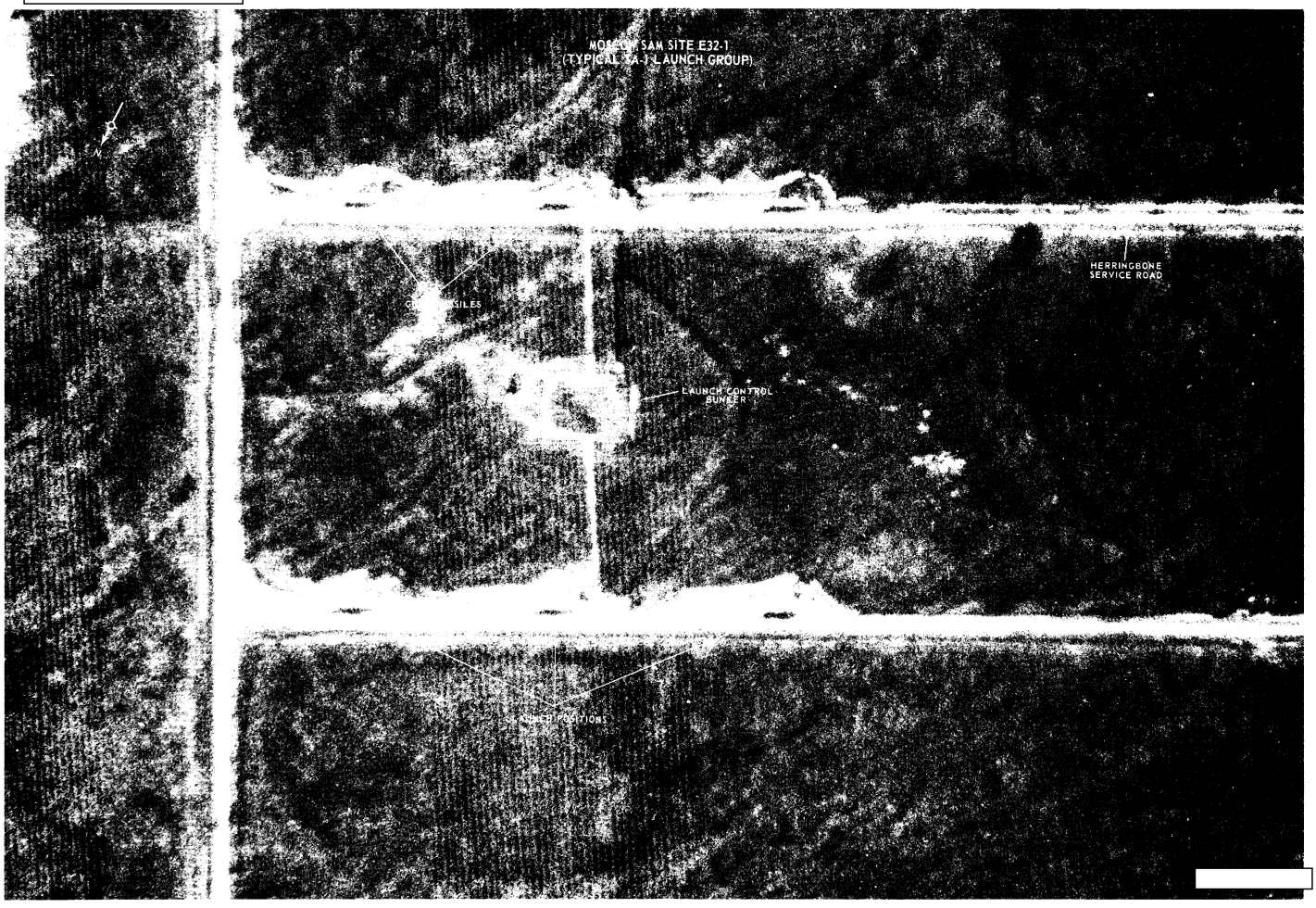

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FIGURE 8

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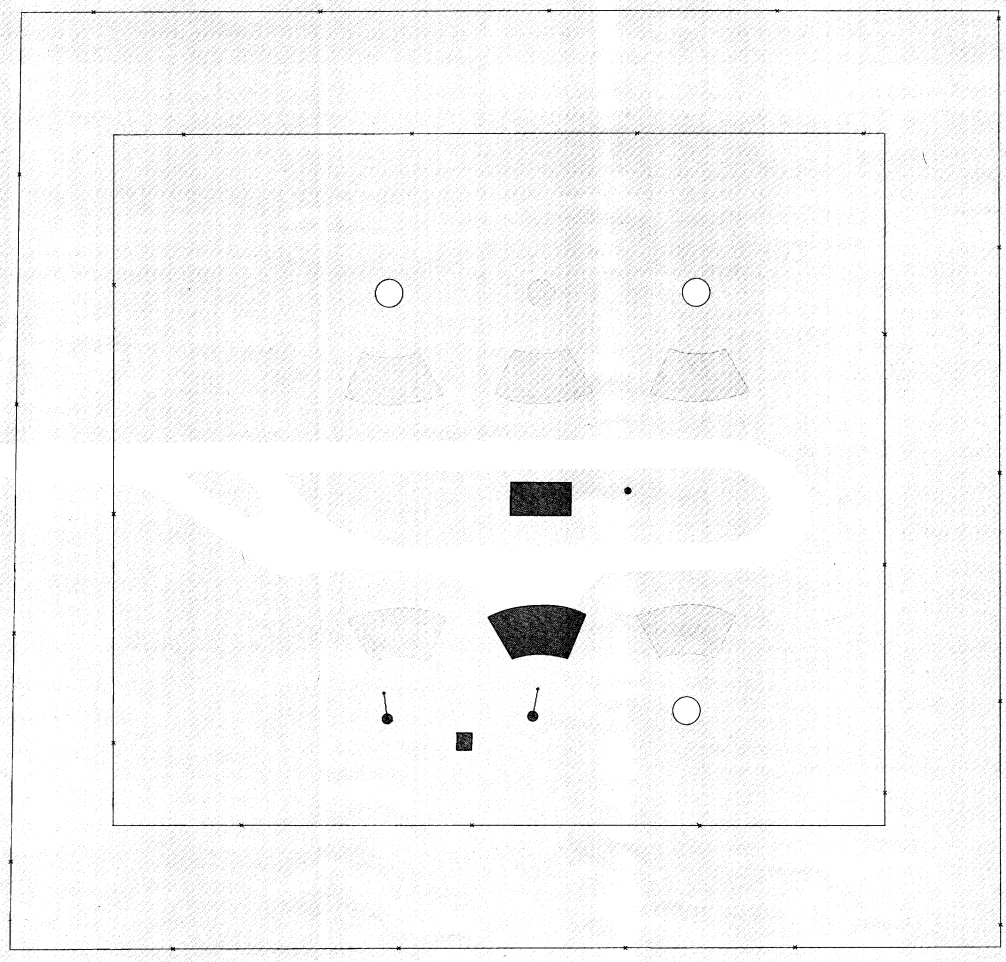

PROJECTED ARRANGEMENT OF A 6 POSITION LAUNCH CONCEPT, SITE 6, LAUNCH COMPLEX A, SARY SHAGAN ANTIMISSILE TEST CENTER

*It should be emphasized that all features shown hereon in red are conjectural, and are presented only for comparison purposes within this report.

DRAWN FROM:

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Launch position
Projected launch position
Fence

100 0 100 200
FEET (APPROXIMATE)

FIGURE 9

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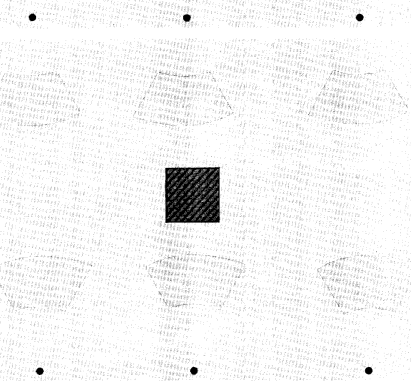
ARRANGEMENT, AT A TYPICAL SA-1 LAUNCH GROUP, OF THE 6 POSITION LAUNCH CONCEPT PROJECTED FROM SITE 6, LAUNCH COMPLEX A, SARY SHAGAN ANTIMISSILE TEST CENTER.*



* It should be emphasized that all features shown hereon in red are conjectural, and are presented only for comparison purposes within this report.

DRAWN FROM:

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● Launch position

100 0 100 200
FEET (APPROXIMATE)

FIGURE 10

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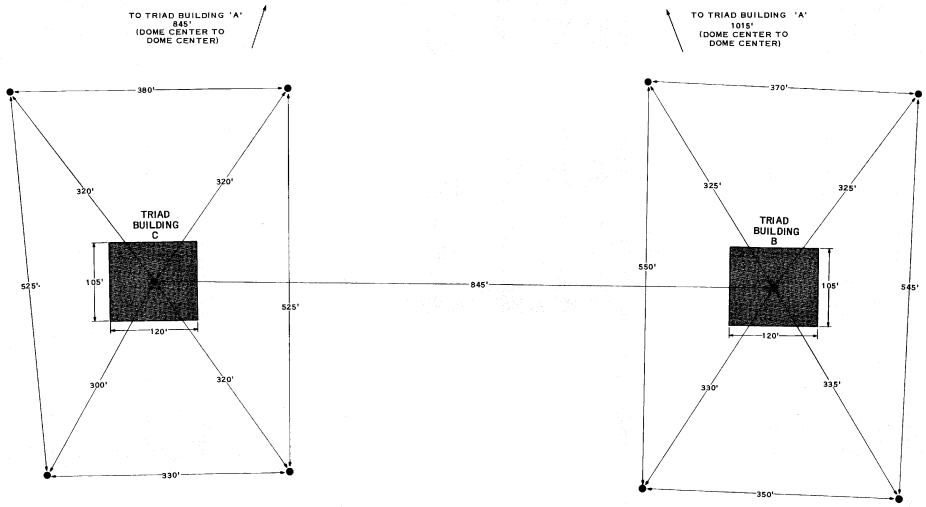
MOSCOW SAM SITE E33-1
(Location Of Probable Galosh Launch Positions Under Construction)



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● Probable launch position under construction

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FIGURE 11

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LOCATIONS OF PROBABLE GALOSH
LAUNCH POSITIONS UNDER CONSTRUCTION, MOSCOW
SAM SITE E33-1

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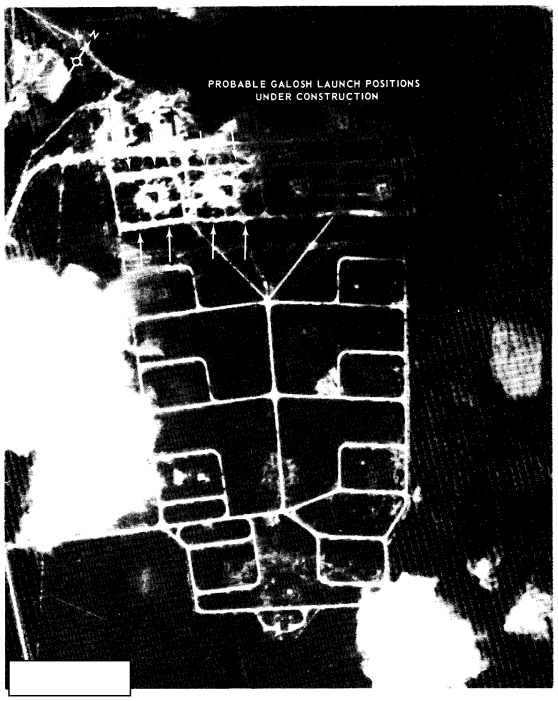

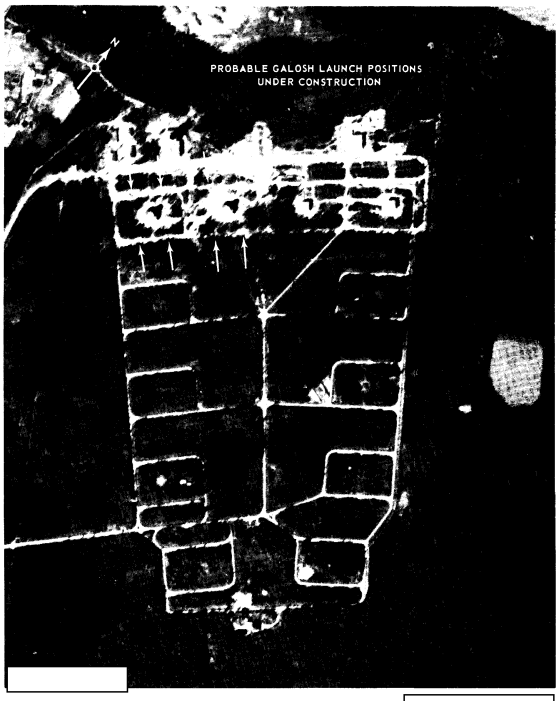

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FIGURE 12

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COMPOSITE DRAWING OF SEVERAL SAM/ABM LAUNCH SITES

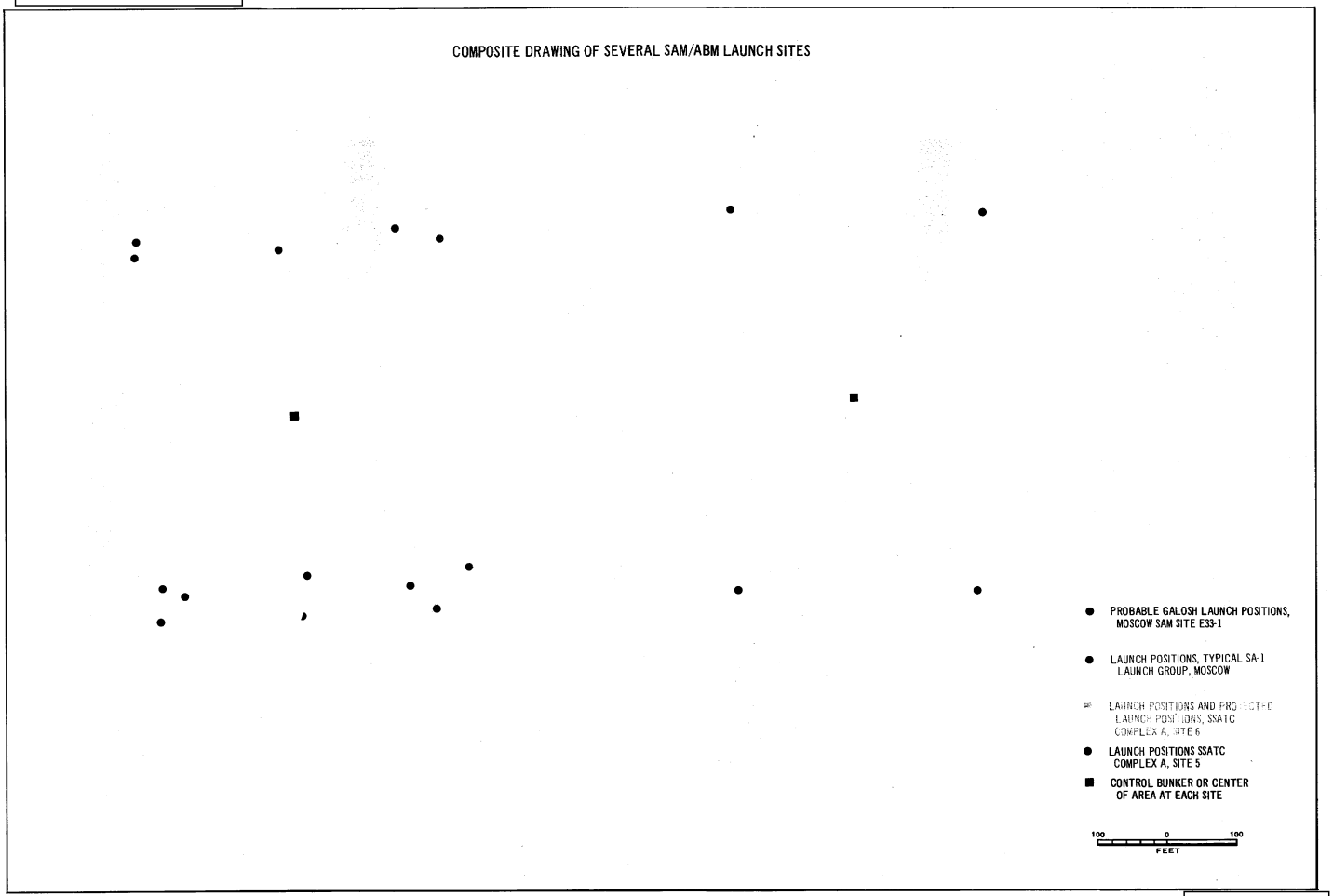

FIGURE 13

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